

What is claimed is:

1. A spring device comprising a coil spring case formed of right, left, back and front side plates and a spring receiving plate, a coil spring having a liner spring property, and a spring urging member for urging the coil spring into the coil spring case, a distance between the right and left side plates of the spring case being set a little larger than an outer diameter of the coil spring, a distance between the back and front side plates of the spring case being set about 1.5 to 2 times larger than the outer diameter of the coil spring, and a length of the spring case being set smaller than a free length of the coil spring, wherein the coil spring is deformed and a non-linear spring property is obtained when the coil spring is urged by the spring urging member.

2. The spring device as claimed in claim 1, wherein a ratio of the distance between the right and left side plates and the distance between the back and front side plates is varied arbitrarily.

3. A brush type small DC motor having a brush urging spring device, the brush urging spring device comprising a brush holder, a coil spring having a liner spring property inserted into the brush holder, and a brush having a connecting portion for connecting the brush and the coil spring, the brush holder being formed of side plates arranged in the upstream and downstream sides in a rotary direction of the motor, an axial side plate, a spring receiving plate, and a side surface of a bracket, a distance between the side plates of the brush holder being set a little larger than an outer diameter of

the coil spring, so that the coil spring is movable freely in the brush holder, a distance between the axial side plate of the brush holder and the side surface of the bracket being set about 1.5 to 2 times larger than the outer diameter of the coil spring, and a length of the  
5 brush holder being set smaller than a free length of the coil spring, wherein the coil spring is deformed and a non-linear spring property is obtained when the coil spring is urged by the brush urging spring device.

4. The brush type small DC motor as claimed in claim 3,  
10 wherein a ratio of the distance between the side plates and the distance between the axial side plate and the bracket side surface is varied arbitrarily.